

THAT WHICH IS CLAIMED:

1. An isolated nucleic acid molecule having a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a fragment of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence comprises at least 500 contiguous nucleotides of the nucleotide sequence set forth in SEQ ID NO:2 and said fragment has aminopeptidase activity;

(b) a nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA insert contained in the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence comprises at least 500 contiguous nucleotides of the nucleotide sequence of the cDNA insert of the plasmid deposited with ATCC as Patent Deposit No. PTA-2811 and said fragment has aminopeptidase activity; and

(c) a nucleotide sequence complementary to at least one of the nucleotide sequences in (a) or (b).

2. An isolated nucleic acid molecule comprising a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 85% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

(b) a nucleotide sequence encoding a sequence variant of the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 85% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811 and said sequence variant has aminopeptidase activity;

(c) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least

about 90% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

(d) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 90% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811 and said sequence variant has aminopeptidase activity;

(e) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 95% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

(f) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 95% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811 and said sequence variant has aminopeptidase activity; and

(g) a nucleotide sequence complementary to at least one of the nucleotide sequences in (a), (b), (c), (d), (e), or (f); wherein said sequence identity is calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

3. The isolated nucleic acid molecule of claim 2, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group

(a) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 85% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

(b) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 85%

sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity; and

- 5 (c) a nucleotide sequence complementary to at least one of the nucleotide sequences of (a) or (b); wherein said sequence identity is calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

10 4. The isolated nucleic acid molecule of claim 3, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group

(a) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 90% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

15 (b) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 90% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity; and

20 (c) a nucleotide sequence complementary to at least one of the nucleotide sequences of (a) or (b); wherein said sequence identity is calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

25 5. The isolated nucleic acid molecule of claim 4, wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group

(a) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least

about 95% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

(b) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 95% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity; and

(c) a nucleotide sequence complementary to at least one of the nucleotide sequences of (a) or (b); wherein said sequence identity is calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

6. A method for producing a polypeptide comprising an amino acid sequence selected from the group consisting of:

(a) the amino acid sequence of a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 85% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(b) the amino acid sequence of a sequence variant of the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 85% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(c) the amino acid sequence of a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 90% sequence

identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(d) the amino acid sequence of a sequence variant of the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent  
5 Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 90% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(e) the amino acid sequence of a sequence variant of the amino acid  
10 sequence set forth in SEQ ID NO:1, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 95% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(f) the amino acid sequence of a sequence variant of the amino acid  
15 sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 95% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4;

(g) the amino acid sequence of a fragment of the amino acid sequence  
20 set forth in SEQ ID NO:1, wherein said amino acid sequence has aminopeptidase activity and is encoded by nucleotide sequence comprising at least 500 contiguous nucleotides of the nucleotide sequence set forth in SEQ ID NO:2; and

(h) the amino acid sequence of a fragment of the amino acid sequence  
25 encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said fragment has aminopeptidase activity and is encoded by a nucleotide sequence comprising at least 500 contiguous nucleotides of the nucleotide sequence of the cDNA insert of the plasmid deposited with ATCC as Patent Deposit No. PTA-2811;

said method comprising introducing a nucleotide sequence encoding the polypeptide into a host cell, and culturing the host cell under conditions in which the polypeptide is expressed from the nucleotide sequence.

5           7.       The method of claim 6, wherein said polypeptide comprises an amino acid sequence selected from the group consisting of:

                  (a)     the amino acid sequence of a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 85% sequence identity to SEQ  
10 ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4; and

                  (b)     the amino acid sequence of a sequence variant of the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is  
15 encoded by a nucleotide sequence having at least about 85% sequence identity to SEQ ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

                  8.       The method of claim 7, wherein said polypeptide comprises an amino acid  
20 sequence selected from the group consisting of:

                  (a)     the amino acid sequence of a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 90% sequence identity to SEQ  
ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length  
25 weight of 4; and

                  (b)     the amino acid sequence of a sequence variant of the amino acid sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is encoded by a nucleotide sequence having at least about 90% sequence identity to SEQ ID

NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight of 4.

9. The method of claim 6, wherein said polypeptide comprises an amino acid  
5 sequence selected from the group consisting of:

(a) the amino acid sequence of a sequence variant of the amino acid  
sequence set forth in SEQ ID NO:1, wherein said variant has aminopeptidase activity and  
is encoded by a nucleotide sequence having at least about 95% sequence identity to SEQ  
ID NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length  
10 weight of 4; and

(b) the amino acid sequence of a sequence variant of the amino acid  
sequence encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent  
Deposit No. PTA-2811, wherein said sequence variant has aminopeptidase activity and is  
encoded by a nucleotide sequence having at least about 95% sequence identity to SEQ ID  
15 NO:2 as calculated using the GAP algorithm with a gap weight of 12 and a length weight  
of 4.

10. The method of claim 6, wherein said polypeptide comprises an amino acid  
sequence selected from the group consisting of:

20 (a) the amino acid sequence of a fragment of the amino acid sequence  
set forth in SEQ ID NO:1, wherein said amino acid sequence has aminopeptidase activity  
and is encoded by nucleotide sequence comprising at least 500 contiguous nucleotides of  
the nucleotide sequence set forth in SEQ ID NO:2; and

(b) the amino acid sequence of a fragment of the amino acid sequence  
25 encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit  
No. PTA-2811, wherein said fragment has aminopeptidase activity and is encoded by a  
nucleotide sequence comprising at least 500 contiguous nucleotides of the nucleotide  
sequence of the cDNA insert of the plasmid deposited with ATCC as Patent Deposit No.  
PTA-2811.

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11. A method for detecting the presence of a nucleic acid molecule in a sample, said method comprising contacting the sample with a nucleic acid probe comprising a nucleotide sequence selected from the group consisting of:

- 5 (a) a nucleotide sequence encoding a fragment of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence comprises at least 500 contiguous nucleotides of the nucleotide sequence set forth in SEQ ID NO:2;
- (b) a nucleotide sequence encoding a fragment of the amino acid sequence encoded by the cDNA insert contained in the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence comprises at least  
10 500 contiguous nucleotides of the nucleotide sequence of the cDNA insert of the plasmid deposited with ATCC as Patent Deposit No. PTA-2811;
- (c) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 85% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and  
15 said sequence variant has aminopeptidase activity;
- (d) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 85% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as  
20 Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity;
- (e) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 90% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;
- 25 (f) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 90% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity;

(g) a nucleotide sequence encoding a sequence variant of the amino acid sequence set forth in SEQ ID NO:1, wherein said nucleotide sequence has at least about 95% sequence identity with the nucleotide sequence set forth in SEQ ID NO:2, and said sequence variant has aminopeptidase activity;

5 (h) a nucleotide sequence encoding a sequence variant of the amino acid sequenced encoded by the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, wherein said nucleotide sequence has at least about 95% sequence identity with the cDNA insert of the plasmid deposited with the ATCC as Patent Deposit No. PTA-2811, and said sequence variant has aminopeptidase activity;

10 and

(i) a nucleotide sequence complementary to at least one of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), or (h);  
and determining whether the nucleic acid probe binds to a nucleic acid molecule in the sample.